

Appl. No. 09/889,632  
Atty. Docket No. 7399  
Amdt. dated 11/24/2003  
Reply to Office Action of July 31, 2003  
Customer No. 27752

### AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

#### Listing of Claims:

Claims 1-29- canceled

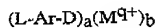
30. (canceled)

31. (canceled)

32. (canceled)

33. (canceled)

34. (currently amended) A composition according to Claim [30] 51 wherein said surfactant system further ~~comprising an~~ comprises one or more noncrystallinity-disrupted alkylarylsulfonate surfactant having the formula:



wherein L is a C<sub>5</sub>-C<sub>20</sub> linear hydrocarbyl unit; D is -SO<sub>3</sub><sup>-</sup>; M is a cation, q is the cation valence, a and b are numbers having values which provide said surfactant with charge neutrality; Ar is selected from benzene, toluene, and mixtures thereof.

35. (canceled)

36. (currently amended) A composition according to Claim [30] 51 wherein said surfactant system further ~~comprising~~ comprises a surfactant selected from the group consisting of alkylene carbonates, monoalkyl succinamates, alkylpolysaccharides, ethoxylated glycerol type compounds, and mixtures thereof.

37. (currently amended) A composition according to Claim [30] 51 wherein said alkylarylsulfonate surfactant admixture has a Sodium Critical Solubility Temperature of 20°C or less.

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38. (canceled)

39. (currently amended) A composition according to Claim [30] 51 wherein said conventional hand dishwashing adjunct ~~adjunct-ingredient~~ is selected from the group consisting of builders, ~~detergents~~ ~~enzymes~~, at least partially water-soluble or water dispersible polymers, abrasives, bactericides, tarnish inhibitors, dyes, solvents, hydrotropes, perfumes, thickeners, ~~antioxidants~~, processing aids, suds boosters, suds suppressors, suds stabilizers, ~~diamines~~, carriers, enzyme stabilizers, polysaccharides, buffers, anti-fungal agents, mildew control agents, insect repellents, anti-corrosive aids, ~~chelants~~ and mixtures thereof.

40. (currently amended) A composition according to Claim [30] 51 wherein the surfactant system comprises further comprising from 0.5% to 25% by weight of the surfactant system, of a polyalkyleneoxy nonionic surfactant, said polyalkyleneoxy nonionic surfactant comprising:

- i) a hydrophobic group selected from C<sub>10</sub>-C<sub>16</sub> linear alkyl, C<sub>10</sub>-C<sub>18</sub> alkyl having 1-3 carbon atom branching, C<sub>10</sub>-C<sub>16</sub> Guerbet alkyl, and mixtures thereof; and
- ii) a hydrophilic group comprising from 1 to 15 C<sub>2</sub>-C<sub>4</sub> alkyleneoxy units, said alkyleneoxy units said units capped with a sulfate moiety.

41. (currently amended) A composition according to Claim [30] 51 wherein the surfactant system comprises further comprising from 0.5% to 25% by weight of the surfactant system, of a C<sub>10</sub>-C<sub>16</sub> linear alkyl sulfate, C<sub>10</sub>-C<sub>18</sub> alkyl sulfate having 1-3 carbon atom branching, C<sub>10</sub>-C<sub>16</sub> Guerbet alkyl sulfate surfactant, and mixtures thereof.

42. (currently amended) A composition according to Claim [30] 51 wherein the surfactant system comprises further comprising from 0.5% to 25% by weight of the surfactant system, of an alkyl alkyleneoxy sulfate surfactant, said surfactant comprising:

- i) a hydrophobic group selected from C<sub>10</sub>-C<sub>16</sub> linear alkyl, C<sub>10</sub>-C<sub>18</sub> alkyl having 1-3 carbon atom branching, C<sub>10</sub>-C<sub>16</sub> Guerbet alkyl, and mixture thereof; and
- ii) a hydrophilic group comprising from 1 to 15 C<sub>2</sub>-C<sub>4</sub> alkyleneoxy units, said alkyleneoxy units said units capped with a sulfate moiety.

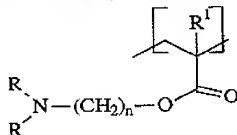
43. (canceled)

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44. (currently amended) A composition according to Claim [43] 51 wherein said diamine is selected from the group consisting of dimethyl amino propylenediamine, 1,6-hexane diamine, 1,3 propane diamine, 2-methyl-1,5pentanediamine, 2,3-pentanediamine, 1,3-diaminobutane, 1,2-bis(2-aminoethoxy)ethane, isophoronediamine, 1,3-bis(methylamine)cyclohexane, and mixtures thereof.

45. (currently amended) A composition according to Claim [30] 51 wherein said conventional hand dishwashing adjunct comprises ~~further comprising~~ a polymeric or copolymeric suds stabilizer, said stabilizer having a molecular weight of from 1,000 to 2,000,000 daltons and comprising units selected from the group consisting of:

i) N, N-(dialkylamido) alkyl esters having the formula:



wherein each R is independently selected from ~~Hydrogen~~ hydrogen, C<sub>1</sub>-C<sub>8</sub> alkyl, and mixtures thereof; R<sup>1</sup> is hydrogen, C<sub>1</sub>-C<sub>6</sub> alkyl, and mixtures thereof; n is from 2 to 6;

ii) acids having the formula:



wherein R<sup>1</sup> is hydrogen, C<sub>1</sub>-C<sub>6</sub> alkyl, and mixtures thereof.

iii) and mixtures thereof provided that the ratio of (ii) to (i) is from 2 to 1 to 1 to 2.

46. (canceled)

47. (currently amended) A composition according to Claim [45] 51 wherein said surfactant system further comprising ~~comprises~~ from 0.5% to 25% by weight of said surfactant system, of an alkyl alkyleneoxy sulfate surfactant, said surfactant comprising:

i) a hydrophobic group selected from C<sub>10</sub>-C<sub>16</sub> linear alkyl, C<sub>10</sub>-C<sub>18</sub> alkyl having 1-3 carbon atom branching, C<sub>10</sub>-C<sub>16</sub> Guerbet alkyl, and mixtures thereof; and

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ii) a hydrophilic group comprising from 1 to 15 C<sub>2</sub>-C<sub>4</sub> alkyleneoxy units, said alkyleneoxy units said units capped with a sulfate moiety.

48. (canceled)

49. (currently amended) A method for washing tableware comprising the step of contacting tableware with an aqueous solution containing a hand dishwashing composition according to Claim 51, comprising

~~A) from 0.1% to 99.9% by weight, of a surfactant system comprising:~~

~~i) from 10% to 100% by weight, of an admixture of two or more alkylarylsulfonate surfactants of formula:~~



~~wherein D is -SO<sub>3</sub><sup>-</sup>, M is a cation, q is the cation valence, a and b are indices numbers having values which provide said surfactant with charge neutrality; Ar is a C<sub>6</sub> aromatic ring; B is a C<sub>2</sub>-C<sub>20</sub> disrupted hydrocarbyl moiety;~~

~~said surfactant admixture has a Sodium Critical Solubility Temperature of 40°C or less; and at least one of the following:~~

~~a) modified SCAS test biodegradation which exceeds the value obtained for tetrapropylene benzene sulfonate; or~~

~~b) a ratio of at least 5:1 by weight, of non-quaternary carbon atoms to quaternary carbon atoms which comprise B;~~

~~ii) optionally one or more detergent surfactants;~~

~~B) from 0.00001% to 99.9% by weight, of an adjunct ingredient; and~~

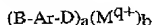
~~C) from 0.01% to 7% by weight, of a divalent ion selected from the group consisting of magnesium, calcium and mixtures thereof.~~

50. (canceled)

51. (new) A hand dishwashing composition comprising:

A) from 0.1% to 99.9% by weight, of a surfactant system comprising:

i) from 10% to 80% by weight of said surfactant system, of two or more alkylarylsulfonate surfactants of formula:



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wherein D is  $-\text{SO}_3^-$ , M is a cation, q is the cation valence, a and b are numbers having values which provide said surfactant with charge neutrality; Ar is selected from benzene, toluene, and mixtures thereof; B comprises a  $\text{C}_5$ - $\text{C}_{20}$  hydrocarbyl moiety and a crystallinity-disrupted moiety; said crystallinity-disrupted moiety interrupts or branches from said hydrocarbyl moiety and is selected from the group consisting of:

I) one or more branches selected from  $\text{C}_1$ - $\text{C}_3$  alkyl,  $\text{C}_1$ - $\text{C}_3$  alkoxy, hydroxy, and mixtures thereof;

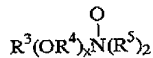
II) one or more interrupts selected from the group consisting of  $-\text{O}-$ ,  $-\text{OSi}(\text{CH}_3)_2\text{O}-$ ,  $-\text{SO}_2-$ , and mixtures thereof;

wherein said surfactant system has a Sodium Critical Solubility Temperature of  $40^\circ\text{C}$  or less; and at least one of the following:

a) modified SCAS test biodegradation which exceeds the value obtained for tetrapropylene benzene sulfonate; or

b) a ratio of at least 5:1 by weight, of non-quaternary carbon atoms to quaternary carbon atoms which comprise B;

ii) from 0.1% to 20% by weight, of an amine oxide selected from the formula

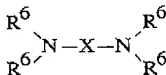


wherein  $\text{R}^3$  is an alkyl, hydroxyalkyl, or alkyl phenyl group or mixtures thereof containing from about 8 to about 22 carbon atoms;  $\text{R}^4$  is an alkylene or hydroxyalkylene group containing from about 2 to about 3 carbon atoms or mixtures thereof; x is from 0 to about 3; and each  $\text{R}^5$  is an alkyl or hydroxyalkyl group containing from about 1 to about 3 carbon atoms or a polyethylene oxide group containing from about 1 to about 3 ethylene oxide groups wherein the amine oxide comprises from 0 to 40 ppm hydrogen peroxide and from 0 to 40 ppm amine impurities;

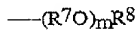
iii) optionally one or more deterative surfactants other than (i) and (ii) wherein the one or more deterative surfactants comprises 0 to 40 ppm hydrogen peroxide;

B) a diamine substantially free of impurities having a  $\text{pK}_a$  of at least 8, said diamine having the formula:

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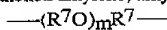


wherein each R<sup>6</sup> is independently selected from the group consisting of hydrogen, C<sub>1</sub>-C<sub>4</sub> alkyl, alkyleneoxy having the formula:



wherein R<sup>7</sup> is C<sub>2</sub>-C<sub>4</sub> linear or branched alkylene, and mixtures thereof; R<sup>8</sup> is hydrogen, [C-C<sub>4</sub>] C<sub>1</sub>-C<sub>4</sub> alkyl and mixtures thereof; m is from 1 to 10; X is a unit selected from:

- i) C<sub>3</sub>-C<sub>10</sub> linear, cyclic, or branched alkylene, alkyleneoxyalkylene having the formula:



wherein R<sup>7</sup> and m are the same as defined herein;

- ii) a C<sub>3</sub>-C<sub>10</sub> linear, cyclic, or branched alkylene, C<sub>6</sub>-C<sub>10</sub> arylenc; wherein said unit comprises one or more electron donating or electron withdrawing moieties which provide said diamine with a pK<sub>a</sub> greater than 8;

- iii) and mixtures thereof;

C) From 0.0001% to 2% by weight, of an enzyme selected from proteases, amylases, lipases, and mixtures thereof;

D) 0.001% to about 5% by weight, of a non-diamine stabilizers selected from antioxidants, chelants, and mixtures thereof;

E) from 0.00001% to 99.9% by weight, of a conventional hand dishwashing adjunct; and

F) from 0.01% to 7% by weight, of a divalent ion selected from the group consisting of magnesium, calcium and mixtures thereof.

52. (new) A composition according to Claim 51 wherein said crystallinity-disrupted alkylarylsulfonate surfactants include two or more homologs.

53. (new) A composition according to Claim 51 wherein said crystallinity-disrupted alkylaryl sulfonate surfactant include two or more isomers selected from the group consisting of:

- ortho-, meta- and para- isomers based on positions of attachment of B and D to Ar, when Ar is a substituted or unsubstituted benzene;
- positional isomers based on positions of attachment of said crystallinity-disrupting moieties to said hydrocarbyl moiety; and

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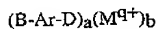
- iii) stereoisomers based on chiral carbon atoms in B;
- iv) positional isomers based on position of attachment of Ar to B at the first, second or third carbon atom in said hydrocarbyl moiety.

54. (new) A composition according to Claim 53 wherein said crystallinity-disrupted alkylaryl sulfonate surfactant includes at least about 60% by weight of said surfactant system of positional isomers based on position of attachment of Ar to B at the first, second, or third carbon atoms in said hydrocarbyl moiety.

55. (new) A method of reducing malodor in a hand dishwashing composition comprising:

A) from 0.1% to 99.9% by weight, of a surfactant system comprising:

- i) from 10% to 80% by weight of said surfactant system, of of two or more alkylarylsulfonate surfactants of formula:



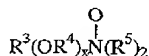
wherein D is  $-SO_3^-$ , M is a cation, q is the cation valence, a and b are numbers having values which provide said surfactant with charge neutrality; Ar is selected from benzene, toluene, and mixtures thereof; B comprises a  $C_5-C_{20}$  hydrocarbyl moiety and a crystallinity-disrupted moiety; said crystallinity-disrupted moiety interrupts or branches from said hydrocarbyl moiety and is selected from the group consisting of:

- I) one or more branches selected from  $C_1-C_3$  alkyl,  $C_1-C_3$  alkoxy, hydroxy, and mixtures thereof;
- II) one or more interrupts selected from the group consisting of  $-O-$ ,  $-OSi(CH_3)_2O-$ ,  $-SO_2-$ , and mixtures thereof;

wherein said surfactant system has a Sodium Critical Solubility Temperature of  $40^\circ C$  or less; and at least one of the following:

- a) modified SCAS test biodegradation which exceeds the value obtained for tetrapropylene benzene sulfonate; or
  - b) a ratio of at least 5:1 by weight, of non-quaternary carbon atoms to quaternary carbon atoms which comprise B;
- ii) from 0.1% to 20% by weight, of an amine oxide selected from the formula

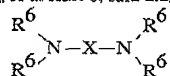
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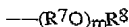
wherein  $\text{R}^3$  is an alkyl, hydroxyalkyl, or alkyl phenyl group or mixtures thereof containing from about 8 to about 22 carbon atoms;  $\text{R}^4$  is an alkylene or hydroxyalkylene group containing from about 2 to about 3 carbon atoms or mixtures thereof;  $x$  is from 0 to about 3; and each  $\text{R}^2$  is an alkyl or hydroxyalkyl group containing from about 1 to about 3 carbon atoms or a polyethylene oxide group containing from about 1 to about 3 ethylene oxide groups;

iii) optionally one or more deterative surfactants other than (i) and (ii) wherein the one or more deterative surfactants comprises 0 to 40 ppm hydrogen peroxide;

B) a diamine having a  $\text{pK}_a$  of at least 8, said diamine having the formula:

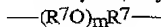


wherein each  $\text{R}^6$  is independently selected from the group consisting of hydrogen,  $\text{C}_1\text{-C}_4$  alkyl, alkyleneoxy having the formula:



wherein  $\text{R}^7$  is  $\text{C}_2\text{-C}_4$  linear or branched alkylene, and mixtures thereof;  $\text{R}^8$  is hydrogen,  $[\text{C-C}_4]$   $\text{C}_1\text{-C}_4$  alkyl and mixtures thereof;  $m$  is from 1 to 10;  $\text{X}$  is a unit selected from:

i)  $\text{C}_3\text{-C}_{10}$  linear, cyclic, or branched alkylene, alkyleneoxyalkylene having the formula:



wherein  $\text{R}^7$  and  $m$  are the same as defined herein;

ii) a  $\text{C}_3\text{-C}_{10}$  linear, cyclic, or branched alkylene,  $\text{C}_6\text{-C}_{10}$  arylene; wherein said unit comprises one or more electron donating or electron withdrawing moieties which provide said diamine with a  $\text{pK}_a$  greater than 8;

iii) and mixtures thereof;

C) From 0.0001% to 2% by weight, of an enzyme selected from proteases, amylases, lipases, and mixtures thereof;

D) 0.001% to about 5% by weight, of a non-diamine stabilizers selected from antioxidants, chelants, and mixtures thereof;

E) from 0.00001% to 99.9% by weight, of a conventional hand dishwashing adjunct, and



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F) from 0.01% to 7% by weight, of a divalent ion selected from the group consisting of magnesium, calcium and mixtures thereof wherein the diamine substantially free of impurities and the amine oxide comprises from 0 to 40 ppm hydrogen peroxide and from 0 to 40 ppm amine impurities.